
Chapter 6:

Environmental Screening: Potential Impacts and Mitigation

One of the Fayette/Raleigh MPO's adopted goals, as outlined in Chapter 3, is for the transportation system to help protect and enhance the natural and cultural environment. The analysis in this chapter helps to evaluate how well the 2040 Plan meets that goal. MAP-21 also requires this type of review to ensure that appropriate consideration is given to potential environmental, historic and cultural impacts of the projects proposed in the Plan, as well as potential mitigation strategies.

One result of this review is a list of specific projects that are identified or "flagged" as potentially having environmental impacts, so that the discussion of avoidance and/or mitigation can begin early. More recently, MPOs have also begun to consider the relationship of the natural environment and the transportation system at a much broader scale, in terms of climate change and the network's resiliency to extreme weather events.

This chapter also assesses the extent to which the 2040 Plan fulfills the principles of Environmental Justice mentioned in Chapter 1. A geographic analysis is performed for the proposed transportation investments to identify whether there could be disproportionate impacts on minority or low-income populations, either through direct effects or through the lack of transportation investment.

ENVIRONMENTAL CONSULTATION PROCESS

The Fayette/Raleigh MPO has used the following approach to ensure the consideration of environmental factors in the 2040 Plan:

- An appropriate level of review was undertaken to assess potential environmental, historic and cultural resource impacts in likely areas for mitigation activities in transportation planning;
- Federal, state, tribal and local land use management, natural resources, wildlife, environmental protection, conservation and historic preservation agencies were consulted in the development of the Plan and provided with the opportunity to comment; and,
- The Plan summarizes the disposition of comments identified by the affected agencies.

REVIEW OF PROPOSED TRANSPORTATION PROJECTS

A review of available GIS databases was utilized to identify and locate known wetlands, flood zones, historic sites, and historic districts within the MPO boundary. Data collected were used to produce base maps of potential area impacts. Locations of the proposed projects in the 2040 Plan were then incorporated onto the base maps to identify possible resource impacts.

Based on the data collected, the 2040 Plan does include projects that have the potential to impact sensitive environmental areas. The scopes of these projects vary and range from spot or intersection improvements to construction on new alignment. The locations shown for the projects are still at a planning level of detail and do not necessarily represent the final limits or exact design of the project. All federally-funded transportation projects must still go through the more detailed review of potential impacts required by the National Environmental Policy Act (NEPA). As a project is further developed, its footprint will continue to be refined and impacts will be better known.

It is also important to note that while the physical constraints of the project may not directly intersect an identified environmentally sensitive area, it is possible that project-related activities may have an indirect impact on the area. The final environmental impacts associated with each project will be determined only after an environmental study for the project is completed.

Historic Resources Screening

Data from the National Park Service was used to identify historic districts and other properties listed on the National Register of Historic Places, shown in **Table 6-2**. These sites were then compared with the general location of proposed transportation projects, as shown in **Figure 6-1**, to identify projects located within 1,000 feet of a listed site. Six proposed transportation projects are located within the specified distance. An environmental document has already been approved for the Thurmond Bridge replacement which included a more detailed, project-level review of impacts as required by NEPA. Development of the New River Scenic Parkway (Project N-3) will likely require revisions to the previously approved environmental document, including public comment.

Table 6-1: Projects with Potential Impact on Historic Resources

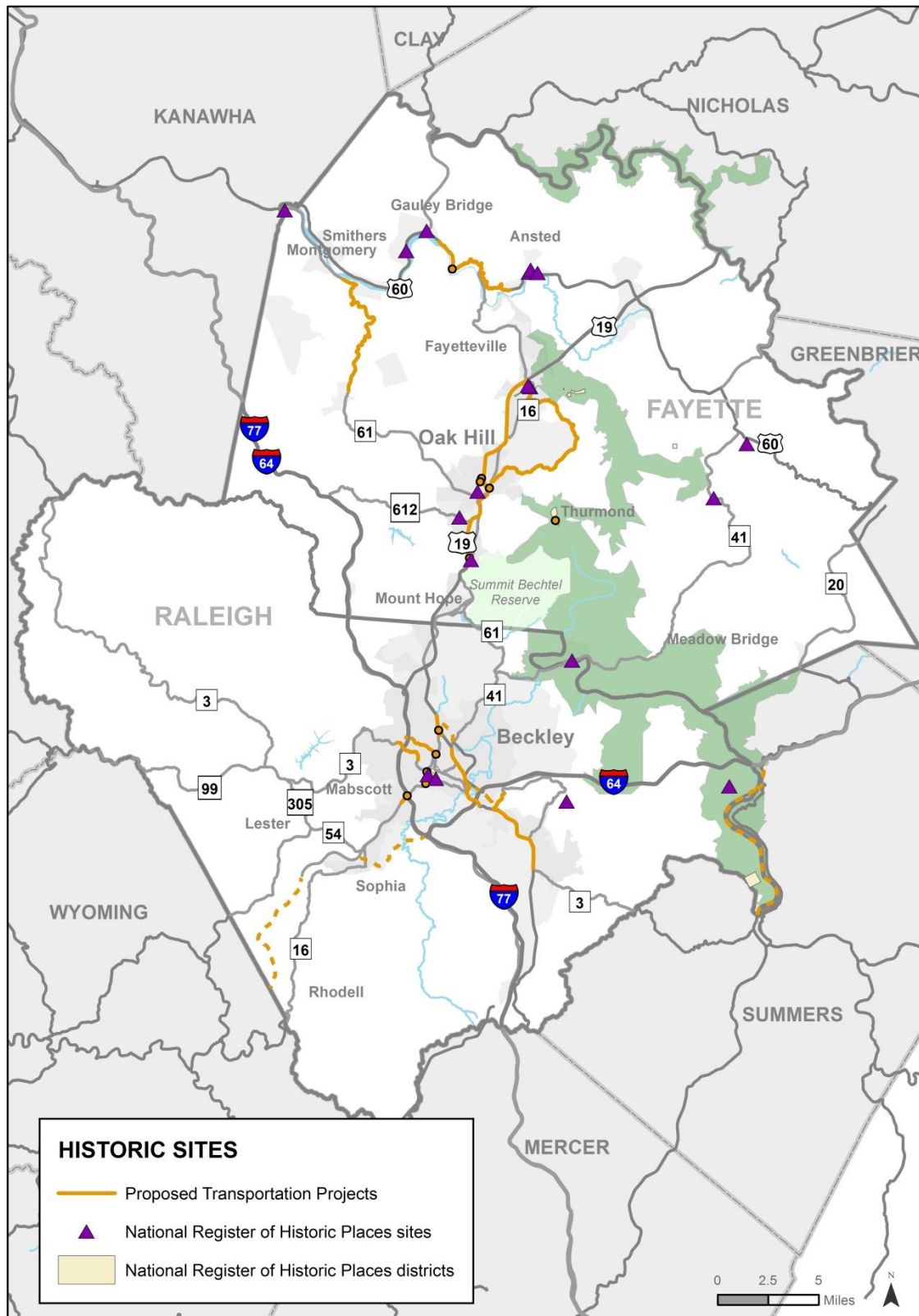
Location*	Project	Year	Description
Thurmond Historic District	S-24	2020	Replace existing Thurmond Bridge to upgrade to two standard traffic lanes and a separated 8-foot bicycle/pedestrian lane
Trump-Lilly Farmstead	N-3	2020	Construct new 2-lane scenic parkway from south of Richmond Bottom to Falls Branch
Fayetteville Historic District	S-22	2030	Safety improvements at US 19 intersections throughout Fayette County
" "	S-9	2030	Add minimum 4-foot shoulders and other safety improvements to Gatewood Road from E. Main St. in Oak Hill to N. Court St. in Fayetteville
Beckley Feed and Hardware Company, Beckley Courthouse Square Historic District	S-4	2040	Construct roundabout at WV 16 / WV 3 junction in Beckley
Bank of Glen Jean	S-16	2040	Upgrade US 19/Glen Jean intersection to an interchange

**Locations are shown if located within 1,000 feet of the centerline of the road proposed for improvement.*

Table 6-2: Locations listed on the National Register of Historic Places in the Fayette/Raleigh MPO Region

County	Site / District	Location	
Fayette	Dr. John Hughart House	Landisburg	Off WV 41
Raleigh	Beckley Feed and Hardware Company	Beckley	405 Prince St.
Fayette	Contentment	Ansted	Along US 60
Fayette	Tyree Stone Tavern	Clifftop	East of Clifftop off US 19 on WV 10
Fayette	Altamont Hotel	Fayetteville	110 Fayette Ave.
Fayette	Fayette County Courthouse	Fayetteville	Court St. between Wiseman and Maple Aves.
Fayette	Gauley Bridge Railroad Station	Gauley Bridge	Off WV 16/39
Fayette	Main Building	Montgomery	West Virginia Institute of Technology campus
Fayette	Page-Vawter House	Ansted	Rt. Box 20
Fayette	Prince Brothers General Store--Berry Store	Prince	WV 41
Raleigh	Wildwood	Beckley	117 Laurel Ter.
Raleigh	St. Colman's Roman Catholic Church & Cemetery	Sandstone	WV 26
Fayette	Halfway House	Ansted	Off Old US 60
Fayette	Whipple Company Store	Whipple	Jct. of County Roads 15 and 21/20
Fayette	Glen Ferris Inn	Glen Ferris	US 60 overlooking Kanawha Falls
Fayette	Oak Hill Railroad Depot	Oak Hill	Junction of Virginia Ave. and Central Ave.
Raleigh	Little Beaver Dam	Crow	SW of Crow, NW Corner of Little Beaver Dam
Fayette	Bank of Glen Jean	Glen Jean	Main St.
Fayette	Thurmond Historic District	Thurmond	WV 25 at New River
Fayette	E.B. Hawkins House	Fayetteville	120 Fayette Ave.
Fayette	Kay Moor	Fayetteville	Along the New River, south of US 19
Fayette	Fayetteville Historic District	Fayetteville	Roughly bounded by WV 16, Maple and Fayette Ave.
Fayette	Camp Washington-Carver Complex	Clifftop	County Road 11/3
Raleigh	Trump-Lilly Farmstead	Hinton	WV 26/3, 2.5 miles from WV 26
Raleigh	Beckley Courthouse Square Historic District	Beckley	Roughly bounded by Prince, Kanawha, Church, Lebanon, Howe, McCreery, Earwood, Alaska and First

Figure 6-1: Proposed Transportation Projects in Relation to Identified Historic Resources



Wetland and Floodplain Screening

Potential impacts to floodplains and wetlands were also evaluated as part of the environmental screening. Proposed transportation projects were compared to areas designated as within the 100-year floodplain, defined by the Federal Emergency Management Agency (FEMA) as an area that will be inundated by a flood event having a 1 percent chance of being equaled or exceeded in a given year. Projects with potential floodplain impacts are listed in **Table 6-3** and shown in **Figure 6-2**. Traffic operations projects involving signals and/or driveway management were not considered to have significant potential impact. The Coalfields Expressway, Industrial Drive Connector, and Thurmond Bridge replacement are also not listed since these projects have approved NEPA documents.

Potential wetland impacts were also reviewed. The U.S. Environmental Protection Agency defines wetlands as “lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface.” Wetlands are further described under the Clean Water Act as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” National Wetlands Inventory data was mapped for the MPO region for comparison with proposed projects in the 2040 Plan. Projects potentially impacting wetland areas larger than one acre have been identified and compiled in **Table 6-4** and are shown in **Figure 6-2**.

Table 6-3: Projects with Potential Impact on 100-Year Floodplains

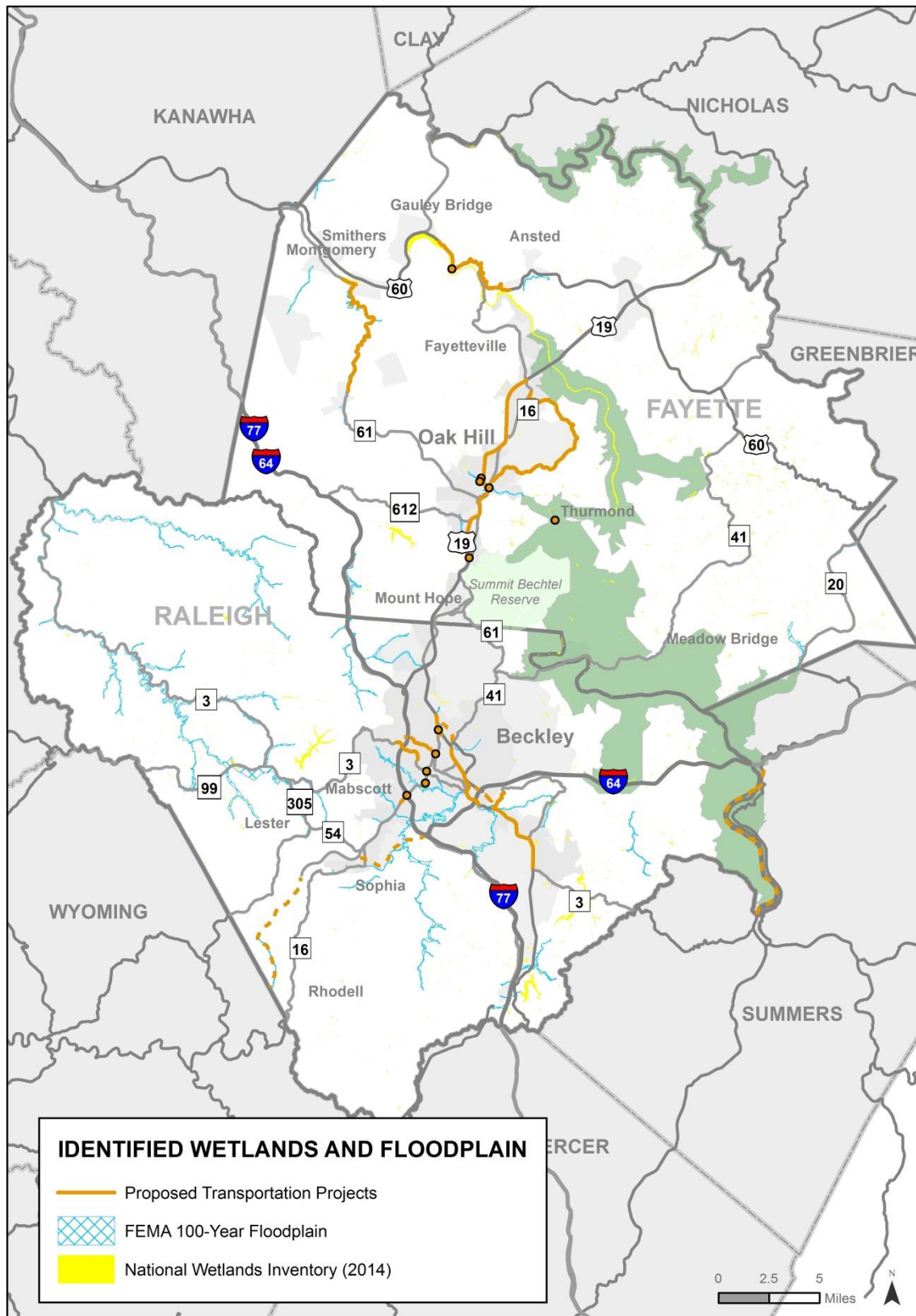
Project	Year	Description
S-11	2020	Add minimum shoulders, safety-related signage and markings to WV 61 from Page Bottom Rd. to Baker Street in Fayette County.
T-12	2020	Add northbound truck climbing lane to WV 307 (Airport Rd.)
N-1	2030	Widen US 19 (Ritter Drive) from 2 to 3 lanes from WV 3 to WV 307 (Airport Rd.)
N-2	2030	Construct new 3-lane road from WV 307 (Airport Rd.) to Interstate 64
S-22	2030	Safety improvements at US 19 intersections throughout Fayette County
S-16	2040	Upgrade US 19/Glen Jean intersection to an interchange

Table 6-4: Projects with Potential Impact on Identified Wetlands *

Project	Year	Description
S-5	2020	Safety improvements at Minden Road Underpass
S-8	2020	Add shoulders, widen horseshoe turns and add pullouts to US 60 from Hawks Nest Lookout to New River Campground
S-22	2030	Safety improvements at US 19 intersections throughout Fayette County
S-9	2040	Add minimum 4-foot shoulders and other safety improvements to Gatewood Rd.

**Projects are identified here if a wetland area larger than one acre is located within 500 feet of the centerline of the road proposed for improvement.*

Figure 6-2: Projects with Potential Impact on Identified Wetlands and/or 100-Year Floodplain



ENVIRONMENTAL MITIGATION STRATEGIES

As previously mentioned, MAP-21 directs states and MPOs to expand the consideration of environmental issues and impacts within the transportation planning process. Metropolitan and statewide transportation plans must include a discussion of types of potential environmental mitigation activities as part of their plans. The following strategies have been developed by the Fayette/Raleigh MPO to address and consider environmental impacts relative to its decisions early in the planning process:

- Continue to use GIS information to identify environmental features (both physical and cultural) early in the planning process, in order to avoid impacts and/or to establish early corrective action plans prior to project construction.
- Partner with local, state, and federal resource agencies early in the planning process to identify potential issues relative to projects under consideration in the MPO's plans and programs to develop appropriate solutions prior to beginning the official project development process.

Environmental impacts cannot always be avoided. Mitigation is the attempt to offset potential adverse effects of human activity on the environment. Potential mitigation activities should be consistent with the requirements of agencies who have responsibility for the human and natural environments. Steps to take in the project development process include:

- **Avoid Impacts**
The first strategy in the environmental process is to avoid adverse impacts altogether.
- **Minimize Impacts**
Minimizing a proposed activity / project size or its involvement may be an option.
- **Mitigate Impacts**
Precautionary, special operational management features and/or abatement measures may be used to reduce construction impacts and repair or restore existing resources.
- **Compensate for Impacts**
Compensation could be made for environmental impacts by providing suitable replacement, or by substituting environmental resources of equivalent or greater value on or off-site.

The Fayette/Raleigh MPO will continue to work with WVDOH and resource agencies in the long range planning process and in the actual project development process, if appropriate. The MPO recognizes that not every project will require the same level of mitigation. All impacts on environmentally sensitive areas will be analyzed on a project by project basis to determine what mitigation strategies are appropriate.

For major construction projects, such as new roadways, or for projects that may have a region-wide environmental impact, a context sensitive solution process should be considered in which considerable public participation and alternative design solutions are used to lessen the impact of the project.

CLIMATE CHANGE AND EXTREME WEATHER EVENTS

Considering the implications of the transportation system on global climate change is a relatively recent direction for metropolitan transportation planning. There is general scientific consensus that the earth is experiencing a warming trend, and that it is important to minimize human-induced increases in atmospheric greenhouse gases (GHGs) to help combat this trend. The combustion of fossil fuels is by far the biggest source of GHG emissions. In the United States, approximately 29 percent of GHG emissions are from transportation sources.

Climate Change Strategies

Because greenhouse gas emissions from transportation sources (fuel combustion and vehicle air conditioning systems) account for a large percentage of the total U.S. GHG emissions, the transportation sector will likely play a large role in the ongoing discussion of national GHG reduction goals.

Some of the activities that the region could undertake to reduce transportation GHG emissions include:

- **Use of low-carbon fuels**
MPO members and partner agencies could sponsor projects to promote the use and availability of alternative fuels that have lower carbon content and therefore generate fewer transportation GHG emissions. These alternative fuels include ethanol, biodiesel, natural gas, liquefied petroleum gas, low-carbon synthetic fuels (such as biomass-to-liquids), hydrogen, and electricity.
- **Improving transportation system efficiency**
Operational strategies, mentioned in Chapter 4, improve transportation system efficiency through reduced vehicle travel time, better traffic flow and decreased idling, which can also result in lower energy use and GHG emissions. Strategies range from truck-idle reduction, to reducing congestion through Intelligent Transportation Systems (ITS) and other innovative forms of traffic management, to air traffic control systems that route aircraft more efficiently and reduce delays. Efficiency can also be improved by shifting travel to more efficient modes, where such shifts are practical in terms of price and convenience—such as passenger vehicle to bus, or truck to rail.
- **Reducing carbon-intensive travel activity**
The objective of this group of strategies is to influence travelers' activity patterns to shift travel to more efficient modes, increase vehicle occupancy, eliminate the need for some trips, or take other actions that reduce energy use and GHG emissions associated with personal travel.

Adaptation to Climate Change

Although the Fayette/Raleigh MPO region will not be directly affected by coastal sea level changes, climate change has other weather-related effects that are very relevant to the region. Most notable are extreme fluctuations in temperature and the trend toward more intense precipitation events.

Even small amounts of rainfall can significantly impact the transportation system when it is received in short, intense bursts. Since water is moving too quickly to be absorbed into the ground, it instead becomes surface runoff, causing dangerous ponding on streets and sometimes undermining their substructure. In areas of karst terrain, repeated deluges of fast-moving water can accelerate the erosion of limestone, creating caverns beneath roadways that may unexpectedly give way. Repeated freeze/thaw cycles also form cracks in rock that gradually widen and split, leading to roadside rockfalls.

In recent years the WVDOH has been dealing with a growing number of slips and rock slides, including two major slides on I-77 in 2013 and another in late 2013 that closed a portion of WV 3 in Raleigh County for more than a week, critically affecting access to schools, businesses and homes. Ironically, the roads most vulnerable to extreme weather are often the ones that provide the only passage through difficult terrain.



Photo by Brad Davis, Beckley Register-Herald

Adapting to these changes may require increasing the annual budget for maintenance activities. Agencies should also consider expanding their efforts to regularly assess hillside stability along major routes, adding stabilization or using proactive blasting where necessary to prevent unexpected slips and slides. Alternative routes – including the US 19 corridor, which is designated throughout the MPO area as a detour route for the West Virginia Turnpike – must be properly maintained and improved as necessary to ensure they are able to carry detour traffic safely. Communities may also need to evaluate their emergency plans to identify areas that are most at risk of being cut off from vital services due to flooding or road collapse.

Environmental Justice and Title VI

Federal laws require that MPOs ensure federal funds are used fairly and without discrimination. Title VI of the Civil Rights Act of 1964 states that “No person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.”

Environmental Justice Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice (EJ) in Minority and Low-Income Populations*, clarified the need to involve minority and low-income populations in transportation decision-making processes and the need to assess the equity of transportation investments. The EO calls for identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. Low-income population is defined as one whose median household income is at or below the Department of Health and Human Services poverty guidelines.

The intent of EO 12898, and the U.S. Department of Transportation's corresponding guidance, is to ensure that these groups are included in the transportation decision-making process, and to ensure that they may benefit equally from the transportation system without shouldering a disproportionate share its burdens.

A disproportionately high and adverse effect is one that is:

- Predominantly borne by a minority and/or low-income population; or
- Suffered by a minority and/or low income population more severely or in greater magnitude than the adverse effect suffered by the non-protected population.

Disproportionately high and adverse effects are not determined solely by the size of the population, but rather the comparative effects on these populations in relation to either non-minority or higher income populations. In this EJ assessment, U.S. Census data was used to identify the demographics of the area in order to recognize potential "communities of concern." Communities of concern are areas where the percentage of low-income households or minorities is greater than that of the entire MPO area.

It is important to note that impacts from transportation projects can be either positive or negative. For example, positive impacts could be improved traffic conditions, decreased accidents, and new/improved sidewalks and bikeways. A negative impact could be the disruption to residents and businesses during the project's construction period as well as potential impacts from right-of-way that may need to be acquired. As the projects in the 2040 Plan progress through the planning and design stages, these areas should be carefully addressed.

ENVIRONMENTAL JUSTICE ANALYSIS

To identify communities of concern within the MPO area, concentrations of minority and low-income populations were mapped using Census block groups or tracts. The determination of what is disproportionately high and adverse human health or environmental effect is context dependent. All block groups/tracts include some members of protected populations, and the approach used in the development of the Plan to identify communities of concern is only based on Census data and the proportion of protected populations that they contain. As each project enters the development process, additional local knowledge of individual neighborhoods should be used to identify potential communities of concern that might have been missed during this Census-based analysis.

Minority Populations

2010 Census data indicates that minority persons comprise about 9.7 percent of the population in the MPO area, as shown in **Table 6-5**.

Table 6-5: Percent Minority Population in the MPO Area

	Total Population	Minority Population	Pct. Minority Pop.
Fayette County	46,039	3,013	6.5%
Raleigh County	78,859	9,059	11.5%
MPO Region	124,898	12,072	9.7%

Figure 6-3 shows the location of census block groups in the MPO area with an above-average percentage of minority persons, relative to the location of proposed transportation projects.

Projects located in or adjacent to these block groups include those listed in **Table 6-6**.

Table 6-6: Projects Located in or Adjacent to Minority Communities

Project	Year	Description
S-11	2020	Add minimum shoulders, safety-related signage and markings to WV 61 from Page Bottom Rd. to Baker Street in Fayette County.
T-12	2020	Add northbound truck climbing lane to WV 307 (Airport Rd.)
S-3	2020	Intersection safety improvements at WV 16 and Veterans Dr.
S-25	2020	Intersection safety improvements at WV 16 (Robert C. Byrd Dr.) and N. Kanahwa St.
N-1	2030	Widen US 19 (Ritter Drive) from 2 to 3 lanes from WV 3 to WV 307 (Airport Rd.)
N-2	2030	Construct new 3-lane road from WV 307 (Airport Rd.) to Interstate 64
N-7	2030	Widen New River Dr. from 2 to 4 lanes
S-22	2030	Safety improvements at US 19 intersections throughout Fayette County
S-9	2040	Add minimum shoulders and other safety improvements to Gatewood Rd.
S-4	2040	Construct roundabout at the WV 16/ WV 3 junction in Beckley

Low-Income Populations

According to the 2010 Census, about 18 percent of the households in the region are living below the poverty level. **Figure 6-4** shows the general location of areas where the number of low-income households is greater than the regional average, relative to the location of proposed transportation projects. (Reliable census data is no longer available at the level of detail previously used for this type of planning analysis, so “low-income community” may or may not be an accurate description for some of these areas.)

Projects located in or adjacent to these areas include those listed in **Table 6-7**.

Figure 6-3: Proposed Transportation Projects in Relation to Areas with Above-Average Percentage of Minority Persons

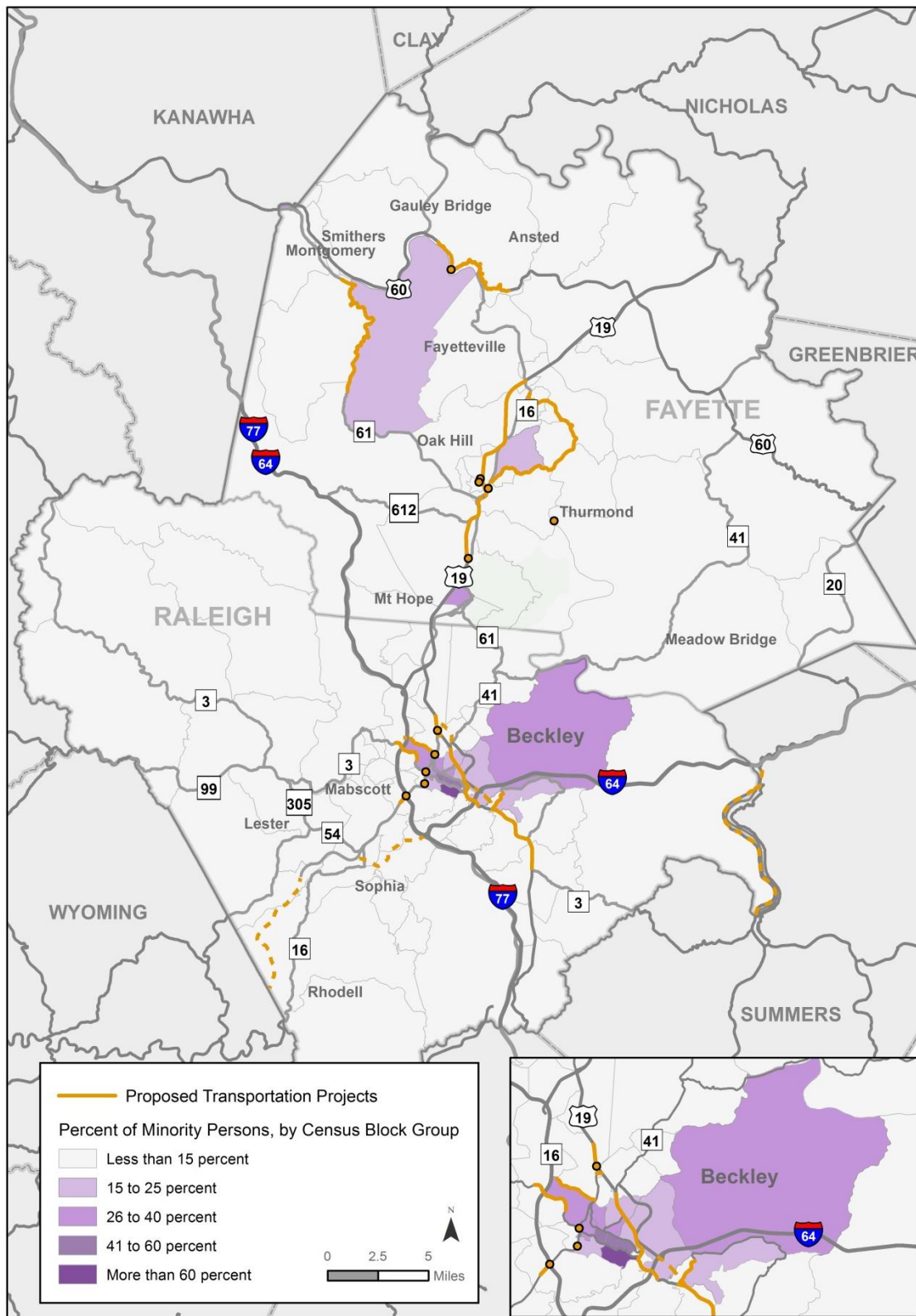


Figure 6-4: Proposed Transportation Projects in Relation to Areas with Above-Average Percentage of Low-Income Persons

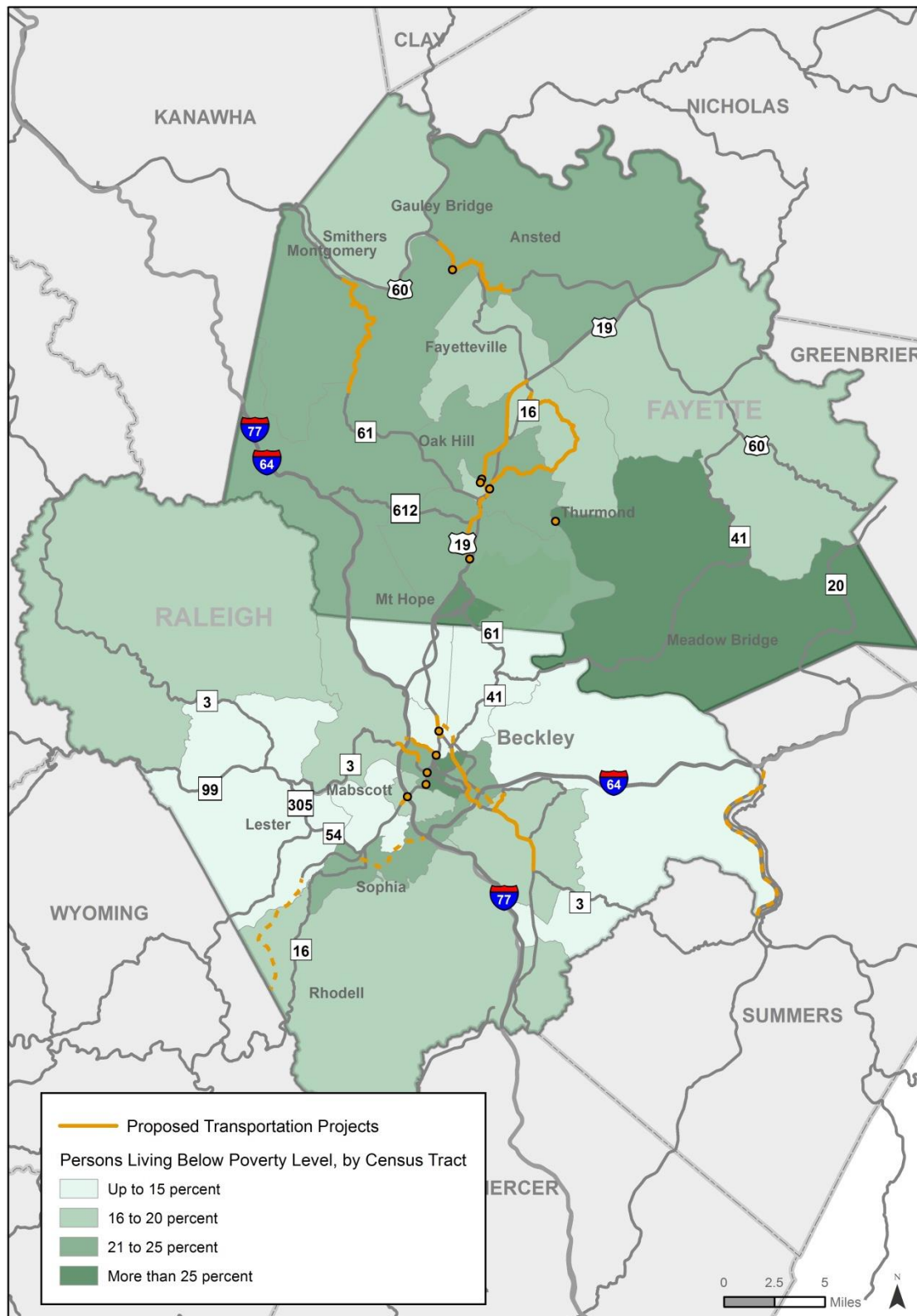


Table 6-7: Projects Located in or Adjacent to Areas With Above-Average Percentage of Low-Income Persons

Project	Year	Description
S-11	2020	Add minimum shoulders, safety-related signage and markings to WV 61 from Page Bottom Rd. to Baker Street in Fayette County.
S-3	2020	Intersection safety improvements at WV 16 and Veterans Dr.
S-1	2020	Intersection safety improvements at Virginia St. and Oyler Ave.
S-2	2020	Safety improvements at Virginia St. and Oak Hill Rail-Trail, including ped crossing
S-5	2020	Safety improvements at Minden Rd. underpass
S-8	2020	Add shoulders, widen horseshoe turns and add pullouts to US 60 from Hawks Nest Lookout to New River Campground
S-21	2020	Intersection safety improvements at US 60 and Hawks Nest Golf Course entrance
T-7	2030	Add passing lanes on US 19 (Eisenhower Dr.) between WV 41 and I-64
N-7	2030	Widen New River Dr. from 2 to 4 lanes
S-22	2030	Safety improvements at US 19 intersections throughout Fayette County
S-9	2040	Add minimum shoulders and other safety improvements to Gatewood Rd.
S-4	2040	Construct roundabout at the WV 16/ WV 3 junction in Beckley
S-16	2040	Upgrade US 19/Glen Jean intersection to an interchanges

ALLOCATION OF FUNDS TO COMMUNITIES OF CONCERN

Highway Projects

Approximately \$273 million in highway projects is planned for investment throughout the MPO area as part of the 2040 Plan. About \$173 million of this investment is for projects that are totally or partially located in, or adjacent to, communities of concern. This represents approximately 63 percent of the total dollars invested in highway projects. Only a small number of projects involve major road widening or construction of new roads, so the overall level of concern is relatively low; however, as described earlier, each project will need to be studied in more detail as the specific designs for the projects are developed.

Roadway Safety and ITS Projects

The roadway safety and ITS projects identified in the Plan are scattered throughout the MPO area and many of them may be developed in conjunction with proposed highway improvements. These improvements typically require little or no right-of-way acquisition and will have a significant positive impact on the residents and businesses as they address existing safety or traffic congestion problems.

Transit Projects

The transit projects identified in the Plan involve continuing operating assistance for transit services and continuing capital assistance for the replacement of buses, replacement and upgrade of miscellaneous

capital equipment, and to upgrade existing facilities. No major capital investment involving land acquisition is proposed.

Bicycle and Pedestrian Projects

The bicycle and pedestrian projects identified in the Plan are scattered throughout the MPO area and many of them will be developed in conjunction with proposed highway improvements. The bicycle and pedestrian improvements that are independent projects will require little or no right-of-way acquisition and are not expected to involve any displacements of businesses or residents.

SUMMARY

Although all segments of the population who live adjacent to roadway construction projects may endure some short-term construction related impacts related to visual changes, noise changes, and alterations in access, neither minority or low-income populations in the MPO region are likely to experience disproportionate impacts due to the projects proposed in the Plan.

Because populations shift and change, additional efforts to identify potential communities of concern should be undertaken as part of the future phases of each project. To ensure that all persons are involved, special outreach efforts are made by local and state agencies during the project development process to identify, and either avoid or help mitigate any adverse impacts and/or burdens from transportation improvements for those areas identified as communities of concern.

Many of the projects identified in the Plan will likely utilize federal funding, in which case documentation in compliance with the National Environmental Policy Act (NEPA) will be required. During the NEPA process, a variety of issues will be evaluated, including an EJ analysis pursuant to EO 12898. In addition, the development of the NEPA document will require public participation, and local coordination with potential environmental justice issues can be identified and addressed.